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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,259	03/03/2006	Sergio Lolli	7374P002	1134

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EXAMINER

LIU, HENRY Y

ART UNIT	PAPER NUMBER
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3657

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01/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,259	Applicant(s) LOLLI ET AL.	
	Examiner HENRY LIU	Art Unit 3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/29/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the first action on the merits for application 10/541259. Claims 1-7 are currently pending in this application.

Status of Claims

Claims 1-7 are pending, of which **Claims 1 and 6** are in independent form.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

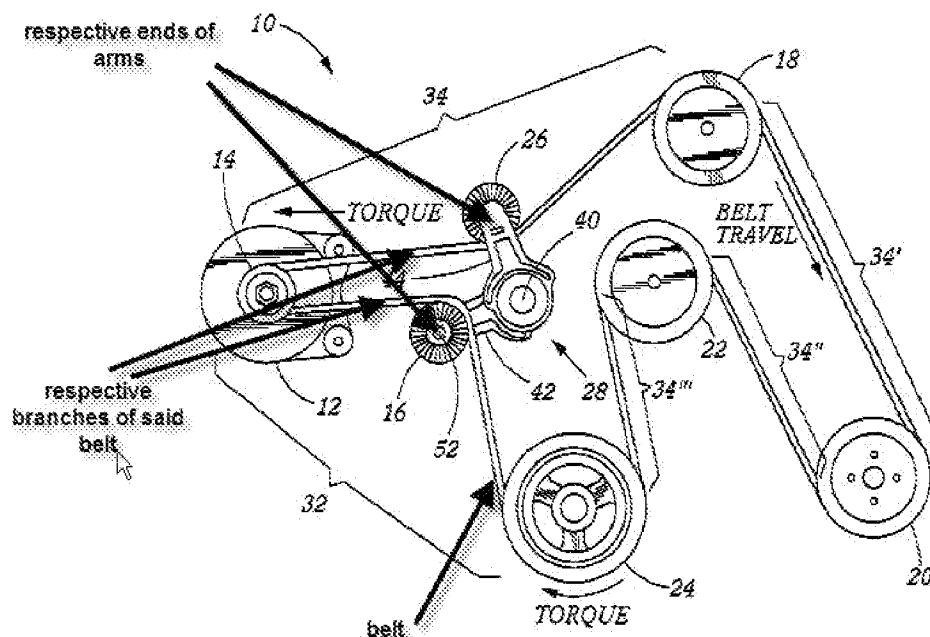
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over ALI (2002/0039944) in view of HENDERSON (4,906,222).

Regarding Claim 1, ALI teaches “a two-arm belt tensioner for a belt drive (28) (Fig. 1), comprising: a fixed portion (50) (Fig. 3), designed to be fixed to a supporting structure.” The mounting base (50) is affixed upon a point stationary in relation to the cylinder block of the engine ([0044]).

ALI teaches “a first arm (42) (Fig. 3) and a second arm (44) (Fig. 3), carried by said fixed portion (50) and hinged thereto about a common axis.” Fig. 3 illustrates that the arms pivot around the cylindrical axis of pivot bolt (40) (Fig. 3).

ALI teaches “a first pulley (16) (Fig. 3) and a second pulley (26) (Fig. 3), mounted idle on respective ends of said arms (42, 44) (Fig. 3) and designed to co-operate with respective branches of a belt (30) ([0034]) of said drive (28).” See figure below.



ALI teaches “and elastic means (38), which force said arms (42, 44) towards one another to maintain said pulleys (16, 26) in contact with said respective branches of the belt ([0046]).”

ALI teaches “said fixed portion (50) comprising a base plate (58) (Fig. 5), a pin (40) (Fig. 3) fixed to said plate (58) and defining said common axis of rotation of the two arms (44, 42).” Fig. 3 illustrates that the arms pivot around the cylindrical axis of pivot bolt (40) (Fig. 3).

ALI does not teach “said arms comprising first arrest elements which are designed to interact with said fixed portion to define respective first positions of arrest of said arms under the action of said elastic means, and respective second arrest elements, which are designed to interact with said fixed portion to define respective second positions of end-of-travel of said arms under the action of the pull of said belt.” ALI also does not teach “said belt tensioner being characterized in that said fixed portion includes an appendage fixed to said base plate and defining an element of contrast for said first and second arrest elements of said arms.”

HENDERSON teaches an arm (25) (Fig. 2) comprising a first arrest element (74) (Fig. 2) designed to interact with a fixed portion (76) (Fig. 2) to define respective first positions of arrest of an arm (25) (Fig. 2) under the action of an elastic means (38) (Fig. 3) (Col. 6 lines 45-68). Henderson teaches a respective second arrest element (75) (Fig. 2), which is designed to interact with the fixed portion (77) (Fig. 2) to define

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respective second positions of end-of-travel of arm (25) (Fig. 2) under the action of the pull of a belt (23) (Fig. 2) (Col. 6 lines 45-68).

HENDERSON teaches a belt tensioner being characterized in that the fixed portion (28) (Fig. 3) includes an appendage (65) (67) (53) (Fig. 4) fixed to the base plate (28) and defining an element of contrast for the first and second arrest elements (74, 75) of the arm (25). The combination of parts (65), (67), and (53) correspond to "appendage."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dual pulley tensioner in ALI such that both arms (ALI (44 and 42)) contain the arrest elements and appendage in HENDERSON (HENDERSON (65, 67, 53, 74, 75, 76, and 77)) to limit arm movement in both rotational directions. This arrangement would limit the amplitudes of resonance tension variations and damping the biasing of the pulley to prevent substantially most cyclic movements.

Regarding Claim 2, ALI as modified teaches "characterized in that said at least one of said first and second arrest elements (HENDERSON (74, 75) of said arms (ALI (44, 42) comprises a radial projection (HENDERSON (74, 75), which extends from the respective arm (HENDERSON (25) and is designed to interact with said appendage (HENDERSON (65) (67) (53)) of said fixed portion (HENDERSON (77)) (Col. 6 lines 45-68)." The arrest elements project radially from the pivot axis of the arm as seen in Fig. 4 of HENDERSON.

Regarding Claim 3, ALI as modified teaches “characterized in that at least one of said arms (ALI (44, 42) comprises a hub (HENDERSON (37)), which houses at least partially said base plate (HENDERSON (21)).” The hub partially houses part (32) of the base plate (21) in HENDERSON. See Fig. 4 in HENDERSON.

ALI as modified teaches “and is provided with an opening (HENDERSON (36, 67’), Fig. 4) through which there comes out said appendage (HENDERSON (53, 67), Fig. 4), at least one of said arrest elements (HENDERSON (74)) being defined by an end contrast element delimiting said opening (HENDERSON (76)).

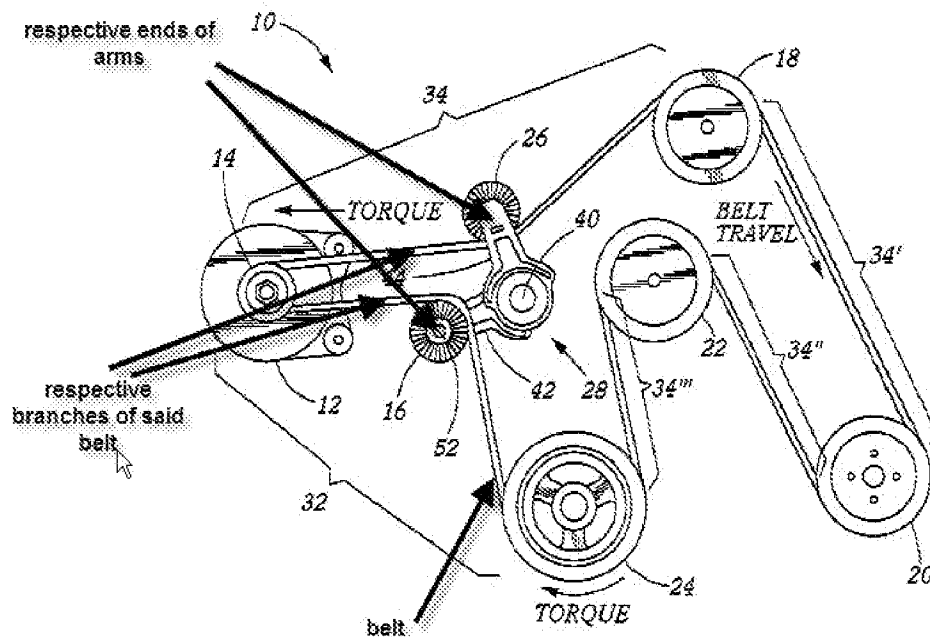
Regarding Claim 5, ALI as modified teaches “characterized in that said elastic means comprise a spiral spring (ALI (38)) (Fig. 3) and in that one of said arms (ALI (44)) comprises a cup-shaped hub (ALI (48)), which houses said spring (ALI (38)) , said spring (ALI (38)) being constrained, with its own outer end, to said hub (ALI (48) (68), Fig. 5) and, with its own inner end, to the other arm (ALI (42)(46)(36), Fig. 5).”

Regarding Claim 6, ALI teaches “a belt drive (10) (Fig. 2) for connecting a reversible electric machine (12) (Fig. 2) to an engine shaft (24) ([0031]) (Fig. 2) of an internal-combustion engine ([0004]), said electric machine (12) being operable as an electric machine for starting said internal-combustion engine or as generator ([0034]), said drive (10) comprising: at least one first pulley (24) fitted on the engine shaft ([0031]) (Fig. 2) of said internal-combustion engine ([0004]); a second pulley (14) (Fig. 2) fitted

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on a shaft of said electric machine (12).” Electric generators in which pulleys are mounted inherently have shafts to mount the pulleys.

ALI teaches “and a belt wound around said pulleys (24, 14) said belt comprising: a first branch and a second branch set respectively between said first pulley (24) and said second pulley (14) and between said second pulley (14) and said first pulley (24) in the direction of motion of the belt itself; and a two-arm belt tensioner (28) (Fig. 2).” See figure below.



which comprises: a fixed portion (50) (Fig. 3), designed to be fixed to a supporting structure ([0044]); a first arm (42) (Fig. 3) and a second arm (44) (Fig. 3), carried by said fixed portion (50) and hinged thereto about a common axis.” Fig. 3 illustrates that the arms pivot around the cylindrical axis of pivot bolt (40) (Fig. 3).

ALI teaches “a first pulley (16) and a second pulley (26), mounted idle on respective ends of said arms (42, 44) and designed to co-operate respectively with said first branch and with said second branch of said belt (Fig. 2) and elastic means (38) (Fig. 4), which force said arms (42, 44) towards one another to maintain said pulleys (16, 26) in contact with said respective branches of the belt ([0046]).”

ALI teaches “said fixed portion (50) comprising a base plate (58) (Fig. 5), a pin (40) (Fig. 3) fixed to said plate (58) and defining said common axis of rotation of the two arms (44, 42).” Fig. 3 illustrates that the arms pivot around the cylindrical axis of pivot bolt (40) (Fig. 3).

ALI does not teach “said arms comprising first arrest elements which are designed to interact with said fixed portion to define respective first positions of arrest of said arms under the action of said elastic means, and respective second arrest elements, which are designed to interact with said fixed portion to define respective second positions of end-of-travel of said arms under the action of the pull of said belt.” ALI also does not teach “said belt tensioner being characterized in that said fixed portion includes an appendage fixed to said base plate and defining an element of contrast for said first and second arrest elements of said arms.”

HENDERSON teaches an arm (25) (Fig. 2) comprising a first arrest element (74) (Fig. 2) designed to interact with a fixed portion (76) (Fig. 2) to define respective first positions of arrest of an arm (25) (Fig. 2) under the action of an elastic means (38) (Fig. 3) (Col. 6 lines 45-68). Henderson teaches a respective second arrest element (75) (Fig. 2), which is designed to interact with the fixed portion (77) (Fig. 2) to define

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respective second positions of end-of-travel of arm (25) (Fig. 2) under the action of the pull of a belt (23) (Fig. 2) (Col. 6 lines 45-68).

HENDERSON teaches a belt tensioner being characterized in that the fixed portion (28) (Fig. 3) includes an appendage (65) (67) (53) (Fig. 4) fixed to the base plate (28) and defining an element of contrast for the first and second arrest elements (74, 75) of the arm (25). The combination of parts (65), (67), and (53) correspond to "appendage."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dual pulley tensioner in ALI such that both arms (ALI (44 and 42)) contain the arrest elements and appendage in HENDERSON (HENDERSON (65, 67, 53, 74, 75, 76, and 77)) to limit arm movement in both rotational directions. This arrangement would limit the amplitudes of resonance tension variations and damping the biasing of the pulley to prevent substantially most cyclic movements.

Regarding Claim 7, ALI as modified does not teach "characterized in that said elastic means (ALI (38) have a rigidity calculated so as to bring about a rotation of each arm (ALI (42, 44) of the tensioner up to the respective second position of arrest (HENDERSON (75)) in the presence of a maximum value of tension of the respective branch of the belt."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to tune a spring to allow arm movement to a set position when a maximum tension is reached in a belt, since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ. Here, a maximum arm movement position is disclosed and a spring imparting a biasing force is disclosed. Having an elastic means rigidity calculated so as to bring about a rotation of each arm of the tensioner up to the respective second position of arrest in the presence of a maximum value of tension of the respective branch of the belt is merely an optimum or working spring force to impart proper belt tensioning characteristics.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over ALI (2002/0039944) in view of HENDERSON (4,906,222), as set forth in the discussion of Claim 1, and further in view of OLIVER (6,689,001) .

Regarding Claim 4, ALI as modified does not teach "characterized in that said first and second arrest elements (74 and 75) are provided with respective buffers made of elastic material for absorbing the impact with said fixed portion (ALI (50)) (HENDERSON (53, 65, 67))."

OLIVER teaches bushings (54) (56) (Fig. 2) mounted on arms (24) (26) (Fig. 2) made with hard rubber (Col. 6 lines 22-32).

It would have been obvious to modify the arrest elements in HENDERSON as modified with the hard rubber bushings in OLIVER to eliminate potential resonance vibration.

Regarding Claim 5, ALI as modified teaches “characterized in that said elastic means comprise a spiral spring (ALI (38)) (Fig. 3) and in that one of said arms (ALI (44)) comprises a cup-shaped hub (ALI (48)), which houses said spring (ALI (38)) , said spring (ALI (38)) being constrained, with its own outer end, to said hub (ALI (48) (68), Fig. 5) and, with its own inner end, to the other arm (ALI (42)(46)(36), Fig. 5).”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY LIU whose telephone number is (571) 270-7018. The examiner can normally be reached on Mon-Thurs 7:30am - 5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT SICONOLFI can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HENRY LIU/
Examiner, Art Unit 3657

/Robert A. Siconolfi/
Supervisory Patent Examiner, Art
Unit 3657